

network layer information in the network protocol, and a link socket to access link layer information in the network protocol.

10. The method of claim 1, wherein the IL API provides a different socket communication interface for each layer of communication available in the network protocol.

11. The method of claim 1, wherein an application communicates with the IL API using object-oriented instructions and the IL API interfaces with the network protocol through instructions executable on a virtual-machine compatible with the network protocol stack.

12. The method of claim 11, wherein the object-oriented instructions are compatible with the Java programming language.

13. An apparatus for performing network communication, comprising:
a processor;
a memory for storing instructions when executed on the processor that causes the processor to,
receiving a datagram for transmitting information over a network;
selecting a layer in a network protocol stack to establish communication over the network using an inner layer application programming interface (IL API);
establishing an inner layer socket at the selected network layer using the IL API without accessing other layers in the layered network protocol stack; and
transmitting the datagram packet over the selected layer using the inner layer socket.

14. The apparatus of claim 13, wherein said datagram includes header information associated with a transport layer for communication over a transport socket.

15. The apparatus of claim 14, wherein the network protocol stack is compatible with TCP/IP and the transport socket uses either TCP or UDP transport layer protocol.

16. The apparatus of claim 13, wherein said datagram includes header information associated with a network layer for communication over a network socket.

17. The apparatus of claim 16, wherein the network protocol is compatible with TCP/IP and the network socket uses an IP network layer protocol.

1 18. The apparatus of claim 13, wherein said datagram includes header information
2 associated with a link layer for communication over a link socket.

1 19. The apparatus of claim 18, wherein the network protocol is compatible with
2 TCP/IP and the link socket uses a link layer protocol.

1 20. The apparatus of claim 13, wherein instructions that select a layer in a
2 network protocol stack further include instructions that determine if the information
3 produced at a particular layer in the network protocol stack corresponds to the desired
4 information available through the network protocol.

1 21. The apparatus of claim 13, wherein instructions in the IL API provides a
2 transport socket to access transport layer information in the network protocol, a network
3 socket to access network layer information in the network protocol, and a link socket to
4 access link layer information in the network protocol.

1 22. The apparatus of claim 13, wherein instructions in the IL API provides a
2 different socket communication interface for each layer of communication available in the
3 network protocol.

1 23. The apparatus of claim 13, further including instructions in an application that
2 communicate with the IL API using object –oriented instructions and wherein the IL API
3 interfaces with the network protocol through instructions executable on a virtual-machine
4 compatible with the network protocol stack.

1 24. The apparatus of claim 23, wherein the object-oriented instructions are
2 compatible with the Java programming language.

1 25. An apparatus for performing network communication, comprising:
2 means for receiving a datagram for transmitting information over a network;
3 means for selecting a layer in a network protocol stack to establish communication
4 over the network using an inner layer application programming interface (IL API);
5 means for establishing an inner layer socket at the selected network layer using the IL
6 API without accessing other layers in the layered network protocol stack; and

7 means for transmitting the datagram packet over the selected layer using the inner
8 layer socket.

1 26. A computer program, tangibly stored on a computer-readable medium,
2 comprising instructions for performing network communication when executed on a
3 processor, by:

4 receiving a datagram for transmitting information over a network;
5 selecting a layer in a network protocol stack to establish communication over the
6 network using an inner layer application programming interface (IL API);
7 establishing an inner layer socket at the selected network layer using the IL API
8 without accessing other layers in the layered network protocol stack; and
9 transmitting the datagram packet over the selected layer using the inner layer socket.

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